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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,099

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28481 7590 05/22/2009  
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EXAMINER

DEGHAN, QUEENIE S

ART UNIT

PAPER NUMBER

1791

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,099	<b>Applicant(s)</b> SOWA ET AL.	
	<b>Examiner</b> QUEENIE DEGHAN	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/18/06</u>   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites a first upper hollow cylinder is fused at a front side with a second lower hollow cylinder. It is unclear how the first hollow cylinder is fused at a "front side", when it appears the first hollow cylinder is arranged to be above a second hollow cylinder in the vertical orientation.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1791

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sterling et al. (4,195,980) in view of Zilnyk (2004/0206128). Sterling discloses a process for producing an optical fiber comprising fusing a first hollow cylinder with a second hollow cylinder so as to form an axial cylinder composite, inserting a core rod into the second hollow cylinder and elongating the coaxial arrangement of the core rod and cylinder composite by vertically supplying the coaxial arrangement into a heating zone and softening the lower end, drawing an optical fiber from the softened end (col. 1 lines 19-39, line 62 to col. 2 line 1, col. 2 lines 14-19, 36-39). As the assembly comprising the first and second cylinder is fed further downward into the heating zone and after the second cylinder has been drawn out, the first hollow cylinder with a core rod is elongated to produce optical fiber as well. Sterling discloses the drawing of fiber from the rod and tube assembly, which is known in the art to involve forming a drawing bulb that progresses up the cylinder composite towards the first hollow cylinder while collapsing the inner bore of the cylinder so as to produce a constriction of the inner bore. This is supported by Zilnyk. Zilnyk teaches a rod-in-tube drawing method comprising inserting a core rod into a hollow cylinder and supplying the rod-in-tube assembly to a heating zone, softening the lower end and elongating the softened end to form an optical fiber ([0047], [0050]-[0051], [0060]). As can be seen in figure 3, Zilnyk teaches forming a drawing bulb that is progressing up the cylinder, wherein the inner bore of the cylinder is collapsing, so as to produce a constriction of the inner bore.

Art Unit: 1791

Zilnyk also teach the fusing of a first upper hollow cylinder, 34(2) to a second lower hollow cylinder, 34(1) ([0022]) and inserting a core rod into this cylinder composite. Accordingly, as this assembly is supplied to the heating furnace, the drawing bulb progresses to the upper hollow cylinder and produces a constriction of the inner bore (figures 2 & 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the drawing of the cylinder composite of Sterling to also similarly result in a constriction of the inner bore of the first hollow cylinder as the drawing bulb progresses upward, wherein the constriction supports the core rod inserted into the cylinder, since this inherently happens when the lower end is softened and a fiber is drawn as made evident by Zilnyk.

4. Furthermore, as the drawing bulb of Zilnyk travels upward toward the first hollow cylinder, once the bulb reaches the fused joint between the first cylinder and the second cylinder, naturally the first hollow cylinder becomes separated from the drawn fiber, as the fiber is severed. Such a separation would be expected to occur around the area of the constriction, since separation of the fiber is the easier at this point and it is a softened area. Although the first hollow cylinder of Zilnyk is not subsequently elongated with a core rod, Zilnyk teaches that at some point in the process, as the fiber is drawn in the Sterling process and as more hollow cylinders and rods are fused to provide for a semi-continuous drawing process, the remaining upper cylinder will be separated from the withdrawn optical fiber at the an area of the constriction as the drawing process cease. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the upper hollow cylinder of Sterling to become

Art Unit: 1791

separated at a separation plane in an area of the constriction from the withdrawn optical fiber since the softened area is the constricted area and is the most convenient spot for the withdrawn fiber to be separated from the remaining cylinder.

5. Regarding claim 2, Sterling disclose further using the first hollow cylinder as the second hollow cylinder, as the fiber drawing progresses and the assembly is fed into the heating zone.

6. Regarding claim 3, Sterling teaches assembling the cylinder and rod and feeding the assembly into the heating zone (col. 1 line 62 to col. 2 line 17). Consequently, with the vertical orientation of the assembly, the upper hollow cylinder holds the lower cylinder. This can also be seen in figure 3 of Zilnyk.

7. Regarding claims 4 and 14-15 the rod in tube assembly of Zilnyk discloses an annular gap between the core rod and cylinder that is collapsed as the drawing bulb progresses toward the upper cylinder. As the fiber drawing process concludes and the remaining upper cylinder is left, an axially continuous opening from the constriction up through the top of the upper cylinder remains. It would have been obvious to one of ordinary skill in the art at the time of the invention to expect an axially continuous opening from the constriction point to the top of the upper cylinder to remain since the upper cylinder assembly has not entered the heating zone for the cylinder to be collapsed and hence eliminating the opening.

8. Regarding claims 5-6, Sterling fail to disclose a pressure in the inner bore of the cylinder. Zilnyk teaches providing a negative pressure in the inner bore of the cylinder during drawing of the fiber ([0051]). Although not specifically mentioned, it would be

Art Unit: 1791

reasonable to expect that the negative pressure provided in the inner bore during drawing to cease once the drawing has ended, resulting in an increased pressure inside the bore of the upper cylinder. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a negative pressure inside the inner bore of the cylinder so as to assist in the collapsing of the outer cylinder onto the core rod to produce an optical fiber. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected an increase in pressure back to ambient in the inner bore as the drawing ends, since production of the optical fiber has ceased.

9. Regarding claims 9-10 and 16-18, Sterling disclose an upper end of a core rod that extends into a region of half the length of the inner bore of the upper hollow cylinder (figure 3).

10. Regarding claim 12, as depicted in figure 3, the outer and inner diameters of the upper and lower cylinders do not differ from each other.

11. Claims 8, 11 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sterling et al. (4,195,980) in view of Zilnyk (2004/0206128), as applied to claims 1-4 above, in further view of Moridaira et al. (2005/0204780).

Regarding claim 8, Sterling and Zilnyk fail to disclose a plunger with a smaller diameter than the core rod. Moridaira teaches a rod in tube process comprising of inserting a core rod into a hollow cylinder and subsequently drawing the assembly into an optical fiber, wherein a plunger (638) which has a smaller diameter than the core rod is used in the inner bore above the core rod (figures 25 & 26, [0160]). It would have been obvious

Art Unit: 1791

to one of ordinary skill in the art at the time of the invention to have utilized a similar plunger, such as Moridaira, in the process of Sterling and Zilnyk in order to provide support for the rod as it is inserted into the hollow cylinder.

12. Regarding claims 11 and 19-21, Sterling and Zilnyk fail to disclose a hollow cylinder with a beveled diameter. Moridaira teaches a hollow cylinder with a beveled outer diameter (figure 4, [0179], [0093]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a beveled outer diameter of the hollow cylinder in the process of Sterling and Zilnyk in order to provide for a tapered end of the glass assembly for faster and more efficient drawing of the optical fiber.

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sterling et al. (4,195,980) in view of Zilnyk (2004/0206128), as applied to claim 1 above, in further view of Fabian et al. (7,028,508). Sterling and Zilnyk fail to disclose machining the upper hollow cylinder to a final dimension. Fabian teaches an overclad during drawing process wherein the hollow cylinder is mechanically machined to a final dimension (abstract, col. 2 line 65 to col. 3 line 18). It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a hollow cylinder that has been mechanically machined to a final dimension in the process of Sterling and Zilnyk in order to provide for an overclad tube that has a high dimensional accuracy, as taught by Fabian.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEGHAN whose telephone number is



Art Unit: 1791

(571)272-8209. The examiner can normally be reached on Monday through Friday 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Queenie Dehghan/  
Examiner, Art Unit 1791